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THE BLAGG COLLECTION OF CALIFORNIA BRYOZOA AT THE MUSEUM OF COMPARATIVE ZOOLOGY, HARVARD UNIVERSITY

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ABSTRACT. The Amy Elizabeth (“Betty”) Blagg Collection of Bryozoa at the Museum of Comparative Zoology (MCZ) consists of 55 lots containing 33 genera (51 species) collected on the coast of California from 1936 to 1938. The collection was received at the Museum of Comparative Zoology in 1939, having been given by Blagg to then curator Elisabeth Deichmann while they were conducting summer research at Stanford University’s Hopkins Marine Station. The Blagg specimens are now accessioned, photographed, and assigned unique MCZ catalog numbers, making their data newly available to researchers. Biographical details on Blagg (Amy Elizabeth Blagg Anderson 1905–1990) and information on Elisabeth Deichmann (1896–1975) are included.

KEY WORDS: Amy Elizabeth “Betty” Blagg; Bryozoa. Museum of Comparative Zoology

THE COLLECTION

Bryozoans from the coast of central California were collected by affiliates of Stanford University’s Hopkins Marine Station between January 1936 and July 1938. A subset thought to be representative of the overall sampling was given to the Museum of Comparative Zoology (MCZ) by Amy Elizabeth “Betty” Blagg (1905–1990) in 1939, likely hand carried from California to Cambridge by Elisabeth Deichmann (1896–1975).

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Most of the specimens were collected by Blagg (Fig. 1), although she also identified some collected by Rolf L. Bolin (1901–1973), Austin Phelps (1905–1988), and J. Stanley Lawrence (1914–1944).

The acquisition is mentioned twice in the MCZ’s annual report for 1938–1939. Deichmann, an MCZ curator, wrote: “Bryozoa ... the moss-animals have been extremely poorly represented in the M.C.Z., mostly by unidentified specimens. It is therefore a great satisfaction to have received, partly as a gift, partly as an exchange, a set of more than fifty identified species from the coast of California. The material is collected and identified by Miss Elizabeth Blagg, of



Figure 1. Amy Elizabeth Blagg, instructor in zoology, 1932. Courtesy of Grinnell College Special Collections and Archives.

California, one of the few students of this group in this country” (Deichmann, 1939). Museum director Thomas Barbour echoed Deichmann’s sentiment, writing that “she seized the opportunity to secure for us some splendid and very welcome material” (Barbour, 1939). Although the Blagg Collection was received “partly as an exchange,” according to Deichmann, an extensive search of the MCZ archives and departmental files found no record of specimens sent by the MCZ to Hopkins Marine Station in exchange for the California bryozoans.

The collection consists of 55 lots of dry preserved bryozoans containing 33 genera (Fig. 2) and 51 different species: 49 lots within the order Cheilostomatida and six lots from the order Cyclostomatida. There are no specimens from the class Phylactolaemata or the order Ctenostomatida (class Gymnolaemata). The specimens remain in the original (2 × 3 inch) envelopes used by Blagg. On the outside of each envelope is

the species name and collection locality data, including precise geographical coordinates (Fig. 3). Species identifications used here were taken from what was written on the outside of the envelopes. No attempt was made to verify or update Blagg’s taxonomic nomenclature. Additionally, on the front of each envelope, Blagg includes a unique item number (1–55) below the species name. The collection remained stored in its original cardboard box from 1939 to 2015. Within the past year, the collection was officially accessioned into the MCZ’s Department of Invertebrate Zoology and assigned the accession number 2000743. Curation followed by giving individual lots a unique MCZ catalog number (137821–137875), and the respective data were entered into the Museum-wide database, MCZbase (Fig. 4). Additionally, both the front and back side of each specimen envelope was photographed. These records and respective images can be viewed by searching the individual catalog number(s) online (MCZbase, 2016).

The specimen lots still remain in the original envelopes, but they are now housed individually in clear archival plastic-hinged boxes (Fig. 3). The specimen lots remain together (rather than housing them under each taxon name with the remainder of the general collection) in their own drawer in one of the MCZ dry preserved bryozoan cabinets. Additionally, the MCZ dry bryozoan collection, along with much of the dry collections in other MCZ departments, was recently relocated to the newly constructed collections area of the Harvard University Northwest Building that is located adjacent to the MCZ Laboratories and the MCZ.

Blagg sent a similar collection of California bryozoan specimens to the Natural History Museum, London, consisting of 43 lots, 41 species, accessioned in November

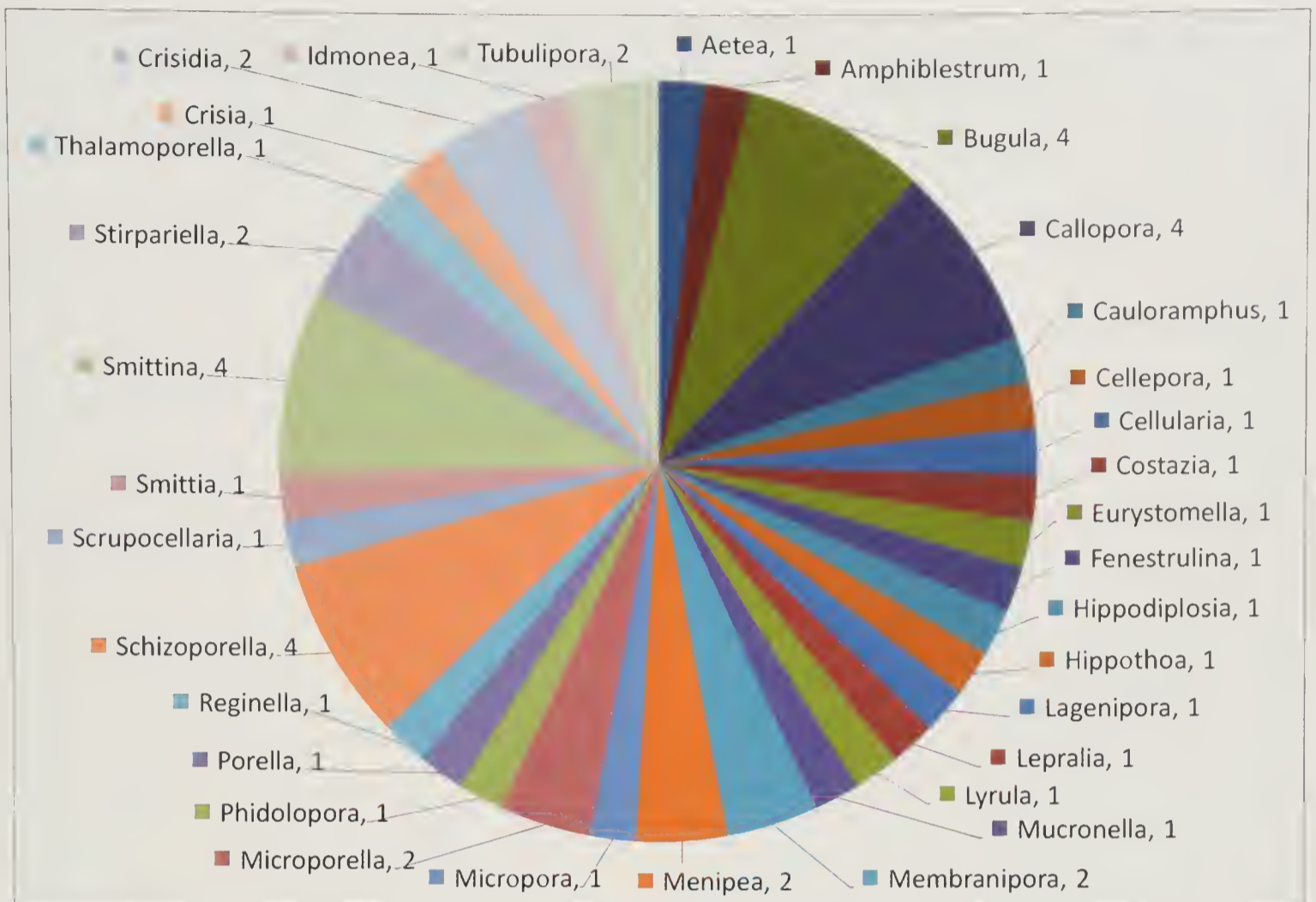


Figure 2. Diversity of bryozoans (33 genera) within the Blagg collection. Generic name above is followed by the number of species within that respective genus.

1938 (Hastings, 1938). That collection included two species not sent to the MCZ: *Eucratea chelata* and *Callopora tenuirostris* (Natural History Museum, 2014). Of the species that were sent to both the Natural History Museum and the MCZ, 10 were collected on the same date from the same location. Blagg corresponded with British bryozoologist Anna Birchall Hastings (1902–1977) at the Museum between 1938 and 1943 (Natural History Museum Archives, 1930–1986). Letters show that Hastings sent British bryozoan specimens to Blagg at Hopkins Marine Station in 1938 (Hastings, 1938; Blagg, 1939) as an exchange. No record has been found for the current location of those specimens (D. G. Kohrs, personal communication to M. Sears, 19 Jan 2017).

BLAGG, DEICHMANN, AND ASSOCIATES AT HOPKINS MARINE STATION

Amy Elizabeth “Betty” Blagg met Elisabeth Deichmann and donated the collection while they were both conducting research at the Stanford University Hopkins Marine Station in Pacific Grove, California (Fig. 5). Blagg first came to Hopkins in the summer of 1937 and stayed as a graduate student there through the summer of 1938. She returned to continue her work on Pacific coast bryozoans in the summer of 1939, when Elisabeth Deichmann was a visiting faculty member. In his annual report for 1938, Hopkins director Walter K. Fisher writes, “During the year Miss Amy Elizabeth Blagg of Grinnell College carried on an extensive systematic and ecological study of

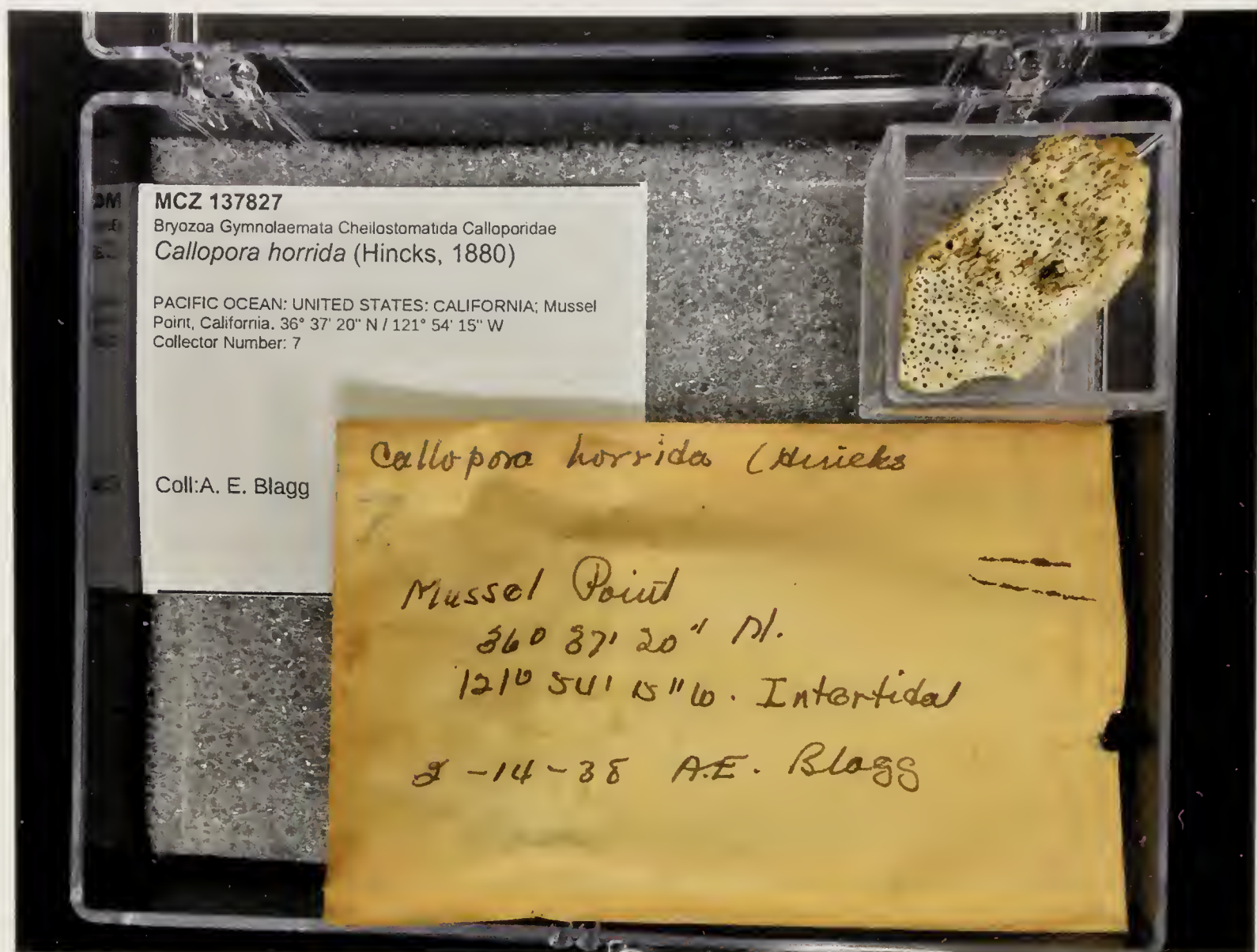


Figure 3. *Callopora horrida* (MCZ 137827) in its current condition housed within the MCZ collections.

the Bryozoa of Monterey Bay and vicinity. A large, well-arranged collection is one of the results of her work" (Fisher, 1938). In his report for 1939, Fisher made brief remarks about both Blagg and Deichmann: "Dr. Elisabeth Deichmann worked on sea cucumbers collected by various Hancock expeditions along the Pacific Coast from Mexico to Ecuador" and "Miss Amy Elizabeth Blagg during the summer continued work in the Bryozoa" (Fisher, 1939).

Dr. Austin Phelps, who was named as collector on two of the MCZ specimens, was an instructor at Hopkins after completing his Ph.D. at Yale; he then joined the faculty of the University of Texas in 1938 (Acosta, 2001). J. Stanley Lawrence, collector on four speci-

mens, was a research assistant at the marine station (Stanford University, 1937, 1938). Lawrence was the only collector not to complete a scientific degree. He left Hopkins to join the military in 1941 (National Archives and Records Administration, 2005) and was killed in 1944, serving as a Second Lieutenant in the U.S. Army (National Cemetery Administration, 2006). Dr. Rolf Bolin, collector on six specimens, had completed his Ph.D. at Stanford in 1934 and was an assistant professor of marine biology and oceanography while Blagg was there. Bolin was promoted to professor in 1949 and spent the remainder of his career at Stanford, serving many years as associate director of the Hopkins Marine Station (Abbott et al., n.d.).

MCZbase: The Database of the Zoological Collection
 Museum of Comparative Zoology - Harvard University

Search My Stuff Help

Invertebrate Zoology 137827

Callopora horrida

whole animal (dry)
 Return to results

Mussel Point, California
 Pacific Ocean: Pacific, Northeast United States: California
 February 14, 1938 (1937-12-15)
 BerkeleyMapper

Identifiers
 collector number 7

Callopora horrida (Hincks, 1880)
 As in the Bryozoa of the United States of America by Hincks, 1880: 100. *Callopora horrida*
 Identified by A. E. Blagg on 1937-12-15
 Nature of ID expert ID

Continent/Ocean Pacific Ocean
 Country United States
 State/Province California
 Specific Locality Mussel Point, California
 Verbatim Locality Mussel Point
 General Habitat Intertidal
 Collecting Source wild caught
 Coordinates 36° 37' 20" N 121° 54' 15" W (not recorded)
 A. E. Blagg, 1937-12-15, unknown
 Collecting Date February 14, 1938 (1937-12-15)

Collectors
 A. E. Blagg

Part Name	Condition	Disposition	#	Remarks
whole animal (dry)	abraded	in collection	1	

Media

image (image/jpeg)
 Media Details
 Media Preview Image

image (image/jpeg)
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Figure 4. *Callopora horrida* (MCZ 137827) record as shown in the MCZ database (MCZbase).

Elisabeth Deichmann was a familiar presence at the Hopkins Marine Station by 1939, having taught and conducted research there in 1924, 1931, 1933, and 1936. She was initially invited to teach the marine invertebrates course at Hopkins in April and May 1939. As she notes in her report for 1938–39, “At the end of the quarter I asked, and received permission, to stay on during the summer quarter and teach the course and also supervise the work of a graduate student” (Deichmann, 1939). Although Deichmann did not name Blagg directly, the circumstances suggest that she was indeed that student.

A native of Denmark, Deichmann emigrated to the United States in the 1920s, arriving at the MCZ in 1926 while working on her Ph.D. at Radcliffe College (Clark,

1927). (All female students were enrolled in Radcliffe rather than Harvard in that era.) Hubert Lyman Clark (1870–1947), then curator of echinoderms at the MCZ, was also involved with research and teaching at Hopkins Marine Station. Both were on the faculty and pursued research on marine invertebrates at Hopkins in 1936 (Fisher, 1936). The archives of the MCZ hold extensive correspondence between W. K. Fisher and Deichmann and between Fisher and Clark, but no references to Blagg have been found.

Deichmann continued her work at the MCZ as an Agassiz fellow, and then as assistant curator of marine invertebrates from 1930 to 1942, curator of marine invertebrates from 1942 to 1961, and curator emeritus from 1961 to 1975 (Levi, 1976).



Figure 5. Hopkins Marine Station, Stanford University, 1928. Courtesy of Miller Library, Hopkins Marine Station of Stanford University.

Although her own research interests were octocorals and holothurians, Deichmann had responsibility for the MCZ's bryozoans and other marine invertebrate specimens.

BIOGRAPHICAL SKETCH OF A. E. BLAGG ANDERSON

Amy Elizabeth "Betty" Blagg Anderson was born in Iowa and had a teaching career in Iowa and California. She was an avid field collector: in addition to the collection of bryozoans described here, she sent California bryozoan specimens to the Natural History Museum in London in 1938 (Blagg, 1938). Other known zoological specimens collected or identified by Blagg include a large (approximately 1,050 lots) collection of bryozoans, originally held by the Allan

Hancock Foundation, now in the Santa Barbara Museum of Natural History in California (Chaney, 2015), and some unusual asteroid specimens held by the Smithsonian National Museum of Natural History in Washington, D.C. (Fisher, 1945). Bryophyte specimens collected by Blagg in Iowa, New York, Vermont, and California are held by 12 major U.S. repositories, including Harvard University's Farlow Herbarium (Bryophyte Portal, 2015). A small collection of North American bryophytes collected by Blagg is also held by the Muséum National d'Histoire Naturelle (2017) in Paris. Blagg did not produce any publications on bryozoans, but she published several articles on bryophytes and other topics. After moving to Tennessee, she edited several volumes

related to nuclear medicine for the Oak Ridge Institute for Nuclear Studies. Blagg was a member of the American Association for the Advancement of Science, the Society of Nuclear Medicine, the Council of Biology Editors, the American Institute for Biological Sciences, the American Medical Writers' Association, and the Tennessee Academy of Science (Anonymous, 1990).

Early life and education

Amy Elizabeth Blagg was born on 14 July 1905 in Mystic, Iowa, daughter of the Rev. George Blagg (1872–1936) and Mrs. Louie Belle Paine Blagg (1876–1964). Rev. Blagg was born in Clarborough, Nottinghamshire, England, in 1872, the third son of a railway signalman (National Archives of the UK, 1881). He emigrated to the United States circa 1889, finding work in Illinois, then Iowa. He graduated from Iowa Wesleyan College, Mt. Pleasant, Iowa, in 1901. Rev. Blagg was a highly regarded pastor in the Methodist church, who served as the District Supervisor of the Oskaloosa District from 1929 to 1932. Amy E. Blagg attended public schools in several towns in Iowa, as her father was assigned to congregations in Mystic, Mt. Sterling, Morning Sun, Montezuma, Albia, Muscatine, Grinnell, and New Sharon. Rev. Blagg retired to Grinnell, Iowa, in 1935, where his daughter was on the faculty of Grinnell College (Hawkins, 2009). Louie Belle Paine graduated from Upper Iowa University, Fayette, Iowa, in 1899 and earned a master's degree from Iowa Wesleyan College in 1900. She was employed as a high school teacher in Mt. Pleasant, Iowa (Anonymous, 1901), and was the principal at Jennings Seminary, Aurora, Illinois (Anonymous, 1902), before her marriage to George Blagg in 1904. Amy E. Blagg had one brother, John C. L. Blagg (1909–1995), who earned a Ph.D. in chemistry from

Columbia University in 1937. His dissertation is titled "The rate of thermal decomposition of deuterium-iodide" (Blagg, 1937). John Blagg pursued a career in the pharmaceutical industry after graduation and was awarded a patent in 1939 for "Preparation of crystalline anhydrous citric acid" while an employee of Charles Pfizer & Co. (Pasternack and Blagg, 1939).

Blagg attended Grinnell College in 1926, then transferred to Iowa Wesleyan College, her parents' alma mater, where she earned a B.S. in Biology in 1927. Her undergraduate research work was well received, with her investigation of dragonflies at Lake Okoboji, Iowa, featured in the *Des Moines Register* in 1926 (Anonymous, 1926). Her first sole author publication "Preliminary list of Iowa mosses" (Blagg, 1927) received a strong review in *The Bryologist* (Dunham, 1929). The reviewer assumed that Blagg was teaching at Iowa Wesleyan, not knowing that she was an undergraduate there. Blagg completed her M.S. in physiology in 1929 at Iowa State College, Ames, Iowa. Her thesis, "Spontaneous activity in relation to metabolism" (Blagg, 1929) described her investigation of diet, metabolism, and activity in laboratory rats.

Teaching

Blagg was an instructor, then assistant professor, of zoology at Grinnell College in Grinnell, Iowa, from 1929 to 1937. She enjoyed life in the college community and the challenges of teaching science within a liberal arts college. In her memoirs (Anderson, n.d.), she shared stories of her colleagues and students and how they coped with the nation's Great Depression in the 1930s. She remarked that the two-person zoology department was composed of the oldest and youngest faculty at the College: she in her mid-twenties and Professor Harry

W. “Bugsy” Norris (1862–1940), who turned 70 while she was there. Blagg was described as an “able young assistant in zoology” (Steere, 1977), who collected moss specimens with Henry Shoemaker Conard (1874–1971), a professor in the botany department. Conard was also a summer lecturer at the Biological Laboratory in Cold Spring Harbor, New York, where Blagg did summer research in 1929.

Blagg took a leave of absence from Grinnell College in 1937, eventually resigning her faculty position, then continued her teaching career in California. In the fall of 1938, after a full year of graduate study at Stanford’s Hopkins Marine Station, she moved to Los Angeles and completed a program in education at the University of California at Los Angeles, earning her “Certificate of Completion for General Secondary and Junior College Credentials” in February 1939 (B. Moore, personal communication to M. Sears, 20 Nov 2015). Blagg was considered an in-state student in California then, no longer an Iowan. The UCLA student directory that year shows her hometown as Pacific Grove, California (University of California, 1938). Blagg taught at Compton Junior College (now El Camino College, Compton Center) in Compton, California, beginning in spring semester 1939, while continuing to spend summers studying bryozoans in Pacific Grove. Blagg wrote to Hastings (Blagg, 1939) that she also taught marine biology at Pacific Grove high school during the summer.

Summer research

Blagg’s work at the Hopkins Marine Station is the most relevant to this report, but it was not her first or only scientific experience outside of landlocked Iowa. Although she did not publish on marine

species, she did significant study at marine and freshwater laboratories: the Biological Laboratory in Cold Spring Harbor, New York, during the summer of 1929, and the Marine Biological Laboratory, Woods Hole, Massachusetts, during the summer of 1933; she spent the summer of 1931 at the University of Michigan Biological Station at Douglas Lake, Michigan, and was a well-known presence at the Iowa Lakeside Laboratory, Lake Okoboji, Iowa (Wolden, 1930–1939; Anonymous, 1990).

Blagg met her future husband, Edward H. “Andy” Anderson, while he was a graduate student at Hopkins Marine Station. His dissertation, completed in May 1943, is titled “Studies on the metabolism of the colorless alga: *Prototheca zopfii*” (Anderson, 1943). They were married at St. Mary’s by-the-Sea Episcopal Church in Pacific Grove, California, on 30 June 1943. The staff of Hopkins Marine Station was well represented at the wedding. Among those who signed as witnesses to the marriage were Hopkins director Walter K. Fisher, faculty members Tage Skogsberg and C.B. van Niel (van Niel was Andy’s thesis advisor), visiting researcher David Spence, and research assistant Howard S. Bliss (Fisher, 1943; St. Mary’s by-the-Sea Episcopal Church, 1943).

Tennessee and the peaceful atom

Following their wedding in spring 1943, the couple moved to Nashville, Tennessee, where E. H. Anderson was employed at Vanderbilt University. Anderson worked in the laboratory of Max Delbrück (1906–1981), the 1969 Nobel laureate in genetics and virology (Harding, 1979). After two years of research as a National Research Council fellow in the biology department and a year in the pathology department at Vanderbilt’s medical school, Anderson joined the Biology Division of Oak Ridge

National Laboratory, Oak Ridge, Tennessee, in 1946 (Anonymous, 1952). Dr. Anderson was one of the first peace-time employees in biology, as the laboratory changed focus after the end of World War II.

Blagg, who published her later works under the name Elizabeth B. Anderson, discussed the early days of the Oak Ridge National Laboratory and the Oak Ridge Institute of Nuclear Studies (ORINS) in her publication "Ten years with the peaceful atom, September 1946 to September 1956" (Anderson, 1956). Blagg's husband passed away in 1952 at the age of 43 from what was then called lymphosarcoma (Tennessee State Library and Archives, 2011), currently known as non-Hodgkin's lymphoma. After her husband's death, she considered resuming her teaching career in California but was offered a position as a medical editor at ORINS (Anderson, 1956). Blagg was on the staff of the Medical Division starting in 1953 until her retirement in 1970. She edited nine volumes for ORINS, including six volumes in the U.S. Atomic Energy Symposium Series.

Blagg remained in Tennessee for her retirement years, eventually moving west of Oak Ridge to Pleasant Hill, in Cumberland County. She passed away on Monday 22 October 1990 in a nursing home in Pleasant Hill at the age of 85 (Anonymous, 1990).

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